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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,507	10/27/2007	Takafumi Matsumoto	029567-00009	9804

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ARENT FOX LLP  
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EXAMINER
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HILTON, ALBERT

ART UNIT	PAPER NUMBER
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1716

NOTIFICATION DATE	DELIVERY MODE
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05/11/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/588,507	<b>Applicant(s)</b> MATSUMOTO ET AL.	
	<b>Examiner</b> Albert Hilton	<b>Art Unit</b> 1716	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/12/2009, 12/04/2008, 08/04/2006</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

1. This is a first action on the merits. Claims 1-12 are pending.

***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Claim Objections***

Claim 7 is objected to because of the following informalities: The examiner suspects that the phrase “one of a drive unit mounted outside of the evacuable chamber and a drive unit mounted inside of the substrate holder” was intended to read “one of a drive unit mounted outside of the evacuable chamber or a drive unit mounted inside of the substrate holder,” and has been interpreted as such for examination purposes. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-5, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Stevenson (US Patent No. 5421979).**

2. Regarding claim 1, it is noted that the recitation of a “transferring to/from means” does not use the language “means for” (see MPEP 2181). The absence of the term “means for” or “step for” raises the rebuttable presumption that claim limitations are not

Art Unit: 1716

in means-plus-function form and thus are not to be interpreted according to 35 USC 112, sixth paragraph. Similarly, the recitation of a “securing means” is not interpreted as invoking the provisions of 35 U.S.C. 112, 6<sup>th</sup> paragraph.

3. Regarding claim 1, Stevenson describes a film forming apparatus (**coating apparatus 30**) comprising a transferring to/from means (**injector arrangement 120**) to transfer a substrate fixing jig (**substrate carriers 66**) fixedly holding a substrate (**substrate 64**) that is to be removably secured onto the outer circumferential surface of a substrate holder (**substrate transporter 100**) to/from the substrate holder (**100**) in the evacuable chamber (**vacuum chamber 32**) (column 5, lines 63-66, column 7, lines 10-14, and Fig. 2); and securing means (**locking key 126**) to releasably secure the substrate fixing jig (**66**) transferred by the transferring to/from means (**120**) onto the outer circumferential surface of the substrate holder (**100**) (column 7, lines 10-14, 58-68, and Fig. 6).

4. Regarding claim 2, Stevenson describes a thin film forming apparatus (**coating apparatus 30**) characterized in that the substrate holder (**substrate transporter 100**) is installed rotatably about a horizontal rotating shaft (**cylindrical axis 101**), and the transferring to/from means (**injector arrangement 120**) transfers the substrate fixing jig in a horizontal direction (**substrate carrier 66**) (column 6, lines 56-64, Fig. 2).

5. Regarding claim 3, Stevenson describes an apparatus characterized in that the transferring to/from means (**injector arrangement 120**) transfers the substrate fixing jig (**substrate carriers 66**) and the substrate (**substrate 64**) in an axial direction of the rotating shaft (**substrate carriers 66**) (Figs 2,10).

Art Unit: 1716

6. Regarding claim 4, Stevenson describes an apparatus characterized in that the transferring to/from means (**injector arrangement 120**) transfers the substrate fixing jig (**substrate carriers 66**) and the substrate (**substrate 64**) in a direction parallel to an outer circumferential surface of the substrate holder (**substrate transporter 100**) (Figs 2,10).

7. Regarding claim 5, the transferring action of the transferring means (**injector arrangement 120**) of the apparatus of Stevenson and the securing action of the securing means (**locking key 126**) (column 7, lines 10-14, 58-68, and Fig. 6) are performed in vacuum chambers (**vacuum chambers 32, 34**) (column 5, lines 63-66).

8. Regarding claim 11, it is noted that the recitation of a "film forming means," a "sputtering means," a "deposition means," and a "CVD means" are not interpreted as invoking the provisions of 35 U.S.C. 112, 6<sup>th</sup> paragraph, since they do not use the language "means for" (see MPEP 2181).

9. Further regarding claim 11, Stevenson an apparatus in which the film-forming means (**deposition devices**) is a sputtering means (**sputtering device**) (column 4, lines 8-13).

**Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stevenson in view of Kinoshita (US Patent No. 3977806).**

10. Regarding claim 6, the action of the securing means (**locking key 126**) of the apparatus of Stevenson is controlled by a motor (**indexing motor 128**) (column 7, lines 21-26, and Fig. 2), but Stevenson does not explicitly state that the motor or securing means is controlled by an electric signal. However, the use of an electric signal to

Art Unit: 1716

control a motor was well-known to an ordinary artisan at the time of the invention, as exemplified by Kinoshita, which teaches a motor (**motor 34**) actuated by an electric signal (Kinoshita: column 5, lines 19-30). One of ordinary skill in the art at the time of the invention, needing to control the motor in the apparatus of Stevenson, would have readily appreciated that the use of an electric signal to control the motor would be an art-recognized solution used for the same intended purpose.

**Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stevenson as applied to claims 1-5 and 11 above, and in further view of Kakehi (US Patent No. 4718681).**

11. Regarding claim 7, it is noted that the recitation of a "securing means" is not interpreted as invoking the provisions of 35 U.S.C. 112, 6<sup>th</sup> paragraph, since it does not use the language "means for" (see MPEP 2181). Similarly, the recitation of a "retaining means" is not interpreted as invoking the provisions of 35 U.S.C. 112, 6<sup>th</sup> paragraph, since it does not use the language "means for."

12. Regarding claim 7, Stevenson describes a mechanism (**locking key 126**) to hold a substrate fixing jig (**substrate carriers 66**), but does not describe mechanism in which the jig is held by pressing with retaining means and released by compressing the retaining means. However, Kakehi describes a mechanism for holding a work piece in a vacuum chamber in which the securing means (**sample chucking apparatus 30**) holds the work piece (**wafer 1**) in position by pressing with a retaining means (**clip 32a, spring 34a**) (Kakehi: column 2, lines 44-57 and Fig. 2). The securing means (**30**) of Kakehi further comprises a mechanism for releasing the wafer (**1**) from the holding by

Art Unit: 1716

compressing the retaining means (**34a**) by a drive unit (**solenoid 31a**) mounted inside the substrate holder (**30**) (Takehi: column 2, lines 60-68, column 3, lines 1-22, and Figs. 2, 3). Takehi teaches that such a securing means is simple and reliable (Takehi: column 1, lines 50-61). One of ordinary skill in the art at the time of the invention, needing a simple and reliable mechanism for holding the jig in the apparatus of Stevenson, would therefore have found it *prima facie* obvious to make use of the securing mechanism of Takehi.

**Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stevenson as applied to claims 1-5 and 11 above, and in further view of Yoshioka (US Patent Application No. 2002/0079057).**

13. Regarding claim 8, Stevenson describes a mechanism (**locking key 126**) to hold a substrate fixing jig (**substrate carriers 66**), but does not describe mechanism in which the securing means secures the jig by magnetic force. However, Yoshioka describes an apparatus in which a work piece is held and transferred in a vacuum using a magnetic force (**magnetic chuck**), and that such a magnetically-actuated holder can be used to transfer the substrate through the load-lock chambers of the apparatus without exposing the substrate to the atmosphere (Yoshioka: paragraph 85). One of ordinary skill in the art at the time of the invention would have recognized the use of a magnetic securing means to hold and transfer a substrate in a vacuum chamber as the obvious selection of an art-recognized solution for the same intended use (see MPEP 2144.07).

14. Regarding claims 9-10, the apparatus of Stevenson comprises an evacuable

Art Unit: 1716

load/unload chamber (**vacuum chamber 34**, which functions as a load-lock chamber) which is connected to the evacuable chamber (**vacuum chamber 32**) via a valve (**valve 44**) (Stevenson column 5, lines 63-68 to column 6, lines 1-10 and Fig. 2). Stevenson does not describe an intermediate transferring chamber located between the load/unload chamber and the processing chamber, as the load/lock chamber effectively function as a transferring chamber. However, such a configuration was well-known in the art at the time, as exemplified by Yoshioka, which uses an evacuable transferring chamber (**vacuum transport unit 2**) to move a substrate from an evacuable load/lock chamber (**load lock chamber 3**) to an evacuable processing chamber (**process unit 1**) (Yoshioka: paragraph 78, Fig. 2). One of ordinary skill in the art at the time of the invention would readily appreciate that the use of a transferring chamber would be an obvious, art-recognized solution for the same intended purpose of transferring a substrate into a processing chamber in a vacuum (see MPEP 2144.07).

**Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stevenson as applied to claims 1-5 and 11 above, and in further view of Tezuka (US Patent No. 4771730).**

15. Regarding claim 12, it is noted that the recitation of a “gas supplying means,” a “plasma exposing means,” an “ion irradiating means,” and an “etching means” do not use the language “means for” (see MPEP 2181). The absence of the term “means for” or “step for” raises the rebuttable presumption that the claim limitations are not in means-plus-function form and thus are not to be interpreted according to 35 USC 112, sixth paragraph.



Art Unit: 1716

16. Further regarding claim 12, Stevenson teaches the use of a sputtering means to process a substrate, but does not explicitly teach one of a plasma exposure means, an ion irradiating means, or an etching means. However, it was known in the art at the time of the invention, as taught by Tezuka, that sputtering, ion etching, and plasma CVD are all common techniques for processing a substrate in a vacuum chamber (Tezuka: column 1, lines 6-18). One of ordinary skill in the art at the time of the invention, motivated by a need to process the substrate in the apparatus of Stevenson via ion etching or plasma CVD would therefore have found it *prima facie* obvious to install a plasma exposing means, an etching means, or an ion irradiation means to the processing chamber of Stevenson.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert Hilton whose telephone number is (571)-270-5519. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571)-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1716

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/Albert Hilton/  
Examiner, Art Unit 1716

/Parviz Hassanzadeh/  
Supervisory Patent Examiner, Art Unit 1716